



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/330,894	06/11/1999	ISAO ICHIMURA	SONY-P9651	9978

7590 01/28/2002

CHARLES P SAMMUT  
LIMBACH & LIMBACH LLP  
2001 FERRY BUILDING  
SAN FRANCISCO, CA 94111

EXAMINER

CHU, KIM KWOK

ART UNIT	PAPER NUMBER
----------	--------------

2653

DATE MAILED: 01/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/330,894

Applicant(s)

ICHIMURA ET AL.

Examiner

Kim-Kwok CHU

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-14 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-7, 15-17, 19-24 and 26-28 is/are rejected.
- 7) ☒ Claim(s) 4, 18 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6. 6) ☐ Other:

**Specification**

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: OPTIMIZING A DISTANCE BETWEEN LENSES OF A TWO-OBJECTIVE LENS FOR MINIMIZING WAVEFRONT ABERRATION AND OFFSETTING FOCUS CONTROL.

2. The disclosure is objected to because of the following informalities:

(a) in the specification, on page 2, line 16, the term "made by the present top inventor" should be changed to --made by the present first inventor--.

Appropriate correction is required.

**Claim Rejections - 35 USC § 102**

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless --  
(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by applicant for patent*

4. Claims 1 and 5 are rejected under 35 U.S.C. § 102(e) as being anticipated by Maeda et al. (U.S. Patent 6,005,834).

Maeda teaches an optical information recording/reproducing apparatus having as all of the elements and means as recited in claims 1 and 5. For example, Maeda teaches the following:

(a) as in claim 1, an optical pickup 23 for making a light beam emitted from a light source 31 incident on a recording medium 2 via a two-group objective lens 36, 37 so as to record or reproduce optical information on or from the recording medium (Fig. 2);

(b) as in claim 1, the two-group objective lens including a first lens 36 disposed in the vicinity of the recording medium 2 and a second lens 37 disposed at a position facing to the recording medium 2 (Fig. 3);

(c) as in claim 1, a moving means 57, 58 and 38 for cyclically moving at least one of the first lens and the second lens constituting part of the optical pickup in the direction of the optical axis (Fig. 3; column 5, lines 10-28; a cyclic movement is a rotational movement done by the thread motor 24 as illustrated in Fig. 1);

(d) as in claim 1, a control means 26 for performing, upon focusing operation, the positional adjustment of the first lens and the second lens after start-up of focus control, on the basis of reproducing signals obtained from the recording medium at one

or more points of the cyclic movement of the at least one of the first lens and the second lens by the moving means (Fig. 1; column 4, lines 15-19); and

(e) as in claim 5, the control means 26 performs, upon focusing operation, the positional adjustment of the first lens and the second lens after start-up of focus control, on the basis of reproducing signals from the recording medium at both ends of the cyclic movement of the at least one of the first lens and the second lens by the moving means (Fig. 1; the positional adjustment of lens based on reproducing signals such as tracking addresses is an inherent feature).

5. Claims 15 and 19 are rejected under 35 U.S.C. § 102(e) as being anticipated by Maeda et al. (U.S. Patent 6,005,834).

Maeda teaches an optical information recording/reproducing apparatus having as all of the elements and means as recited in claims 15 and 19. For example, Maeda teaches the following:

(a) as in claim 15, an optical information recording/reproducing apparatus including an optical pickup 23 for making a light beam emitted from a light source 31 incident on a recording medium 2 via a primary lens 36 disposed in the vicinity of the recording medium 2 and at least a secondary lens 37 so as to record or reproduce optical information on or from the recording medium 2 (Fig. 2);

(b) as in claim 15, a first drive 57, 58 and 59 means for driving the primary lens 36 in the direction of the optical axis (Fig. 3; column 5, lines 10-28);

(c) as in claim 15, a second drive means 61 for driving the secondary lens in the direction of the optical axis (Fig. 3; column 5, lines 29-37);

(d) as in claim 15, a moving means 24 for cyclically moving at least one of the primary lens and the secondary lens constituting part of the optical pickup in the direction of the optical axis (Fig. 1);

(e) as in claim 15, a control means 26 for performing, upon focusing operation, the positional adjustment of the primary lens and the secondary lens after start-up of focus control, on the basis of reproducing signals obtained from the recording medium at one or more points of the cyclic movement of the at least one of the primary lens and the secondary lens by the moving means (Fig. 1; the positional adjustment based on reproducing signals is an inherent feature because the reproduced signals provide servo and tracking information); and

(f) as in claim 19, the control means performs, upon focusing operation, the positional adjustment of the primary lens and the secondary lens after start-up of focus control, on the basis of reproducing signals from said recording medium at both ends of the cyclic movement of said at least one of the primary

lens and the secondary lens by said moving means (Fig. 1; the positional adjustment of lens based on reproducing signals such as tracking addresses is an inherent feature).

6. Claims 22 and 26 are rejected under 35 U.S.C. § 102(e) as being anticipated by Maeda et al. (U.S. Patent 6,005,834).

Maeda teaches a method of recording/reproducing information having all of the steps as recited in claims 22 and 26. For example, Maeda teaches the following:

(a) as in claim 22, using an optical pickup 23 for making a light beam emitted from a light source 31 incident on a recording medium 2 via a two-group objective lens 36 and 37 so as to record or reproduce optical information on or from the recording medium (Fig. 2);

(b) as in claim 22, the two-group objective lens including a first lens 36 disposed in the vicinity of the recording medium 2 and a second lens 37 disposed at a position facing to the recording medium 2 (Fig. 3);

(c) as in claim 22, cyclically moving at least one of the first lens 36 and the second lens 37 constituting part of the optical pickup in the direction of the optical axis (Fig. 3; a cyclic movement is a rotational movement done by the thread motor 24 as illustrated in Fig. 1);

(d) as in claim 22, the optical pickup 23 performs focusing operation, the positional adjustment of the first lens and the second lens after start-up of focus control, on the basis of reproducing signals obtained from the recording medium at one or more points of the cyclic movement of the at least one of the first lens and the second lens (Fig. 1; the positional adjustment based on reproducing signals is an inherent feature because the reproduced signals provide servo and tracking information); and

(e) as in claim 26, performing, upon focusing operation, the positional adjustment of said first lens and said second lens after start-up of focus control, on the basis of reproducing signals from said recording medium at both ends of the cyclic movement of said at least one of said first lens and said second lens (Fig. 1; the positional adjustment of lens based on reproducing signals such as tracking addresses is an inherent feature).



**Claim Rejections - 35 USC § 103**

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

8. Claims 2, 3, 6, 7, 16 17, 20, 21, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al. (U.S. Patent 6,005,834) in view of Funada (U.S. Patent 4,730,294).

Maeda teaches an optical information recording/reproducing apparatus very similar to that of the instant invention.

However, Maeda does not teach the following:

(a) as in claims 2, 16 and 23, the moving means is synchronized with an appearance cycle of pit signal portions which are previously, discretely formed on the recording medium;

(b) as in claims 3, 17 and 24, the positional adjustment of the first lens and said second lens is based on an envelope component (DC offset) of a reproducing signal detected by said optical pickup; and

(c) as in claims 6, 7, 20, 21, 27 and 28, an envelope component of a reproducing signal detected by the optical pickup, a signal component having passed through a low/high band filter is used for detection of a variation in amplitude accompanied by the adjustment of a distance between the first lens and the second lens.

Funada teaches an optical information recording/reproducing apparatus having a pre-format address information and a band filter 35 (Fig. 2A).

As in claims 2 and 16, it is well known that pit signals such as pre-formatted pits are cyclic/periodically formed on an optical recording medium for synchronize/control an optical pickup's moving means. Hence, when there is a need for controlling an optical head such as Funada's and Maeda's, it would have been obvious to one of ordinary skill in the art at the time of invention to formed a pre-formatted pits similar to Funada's in Maeda's recording disk, because the cyclic/periodically formed pre-pits provides tracking address for controlling the pickup head's moving means.

In addition, as in claims 3 and 17, since reproduced signals are in RF form and can not be used to drive any controlling means such as Maeda's driving motor, it is necessary to filter the RF signals to obtain DC (envelope component) signals. For example, Funada uses filtering means 35 to extract the pre-formatted pit

signals to a form of DC offset signals. Hence, it would have been obvious to one of ordinary skill in the art at the time of invention to filter out a reproduced pre-formatted pit signals such as Funada's and Maeda's, because the filtered signal is a DC offset (envelope components) signal which can be used to drive a pickup's moving/positional means.

Furthermore, as in claims 6, 7, 20, 21, 27 and 28, although Funada does not teach that his filtering means is a low/high pass filter, however, the rectifier 35 of Funada is a signal filtering means. Whether Funada's filtering means 35 is a low or high pass filter depends on the nature of the pre-formatted signals.

Therefore, in order to control Maeda's pickup and its lens, it would have been obvious to one of ordinary skill in the art at the time of invention to use a low/high filter means such as Funada's rectifier 35 to filter the reproduced signals, because the filter means can extract the envelope components from the amplitude varying reproduced signals.

***Allowable Subject Matter***

9. Claims 4, 18 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claims 8-14 are allowable over prior art.

11. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claims 4, 18 and 25, the prior art of record fails to teach or fairly suggests an optical information recording/reproducing apparatus having an optical information recording/reproducing apparatus having an optical pickup for making a light beam emitted from a light source incident on a recording medium via a two-group objective lens so as to record or reproduce optical information on or from the recording medium.

In addition, a cycle of the cyclic change in a distance between a first lens and a second lens is longer than a cycle of the cyclic movement of the at least one of the first lens and the second lens.

As in claim 8, the prior art of record fails to teach or fairly suggests an optical information recording/reproducing apparatus having an optical pickup for making a light beam

emitted from a light source incident on a recording medium via a two-group objective lens so as to record or reproduce optical information on or from the recording medium; a third lens so as to record or reproduce optical information on or from the recording medium. Furthermore a first drive means for integrally driving the first lens and the second lens in the direction of the optical axis; a second drive means for driving the third lens in the direction of the optical axis.

### **Conclusion**

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jain et al. (6,270,696) is pertinent because Jain teaches an integrated optical assembly having two objective lens.

Ichimura et al. (6,097,688) is pertinent because Ichimura teaches an optical head having two objective lens.

Bietry et al. (6,075,656) is pertinent because Bietry teaches an objective lens consisting of two elements.

Yamamoto et al. (5,828,453) is pertinent because Yamamoto teaches an optical head having an objective lens of two optical elements.

Kino (5,689,480) is pertinent because Kino teaches an optical head an optical head of two elements.

Kuribayashi et al. (5,646,932) is pertinent because

Kuribayashi teaches an recording medium having pre-formatted pits recorded.

Corle et al. (5,125,750) is pertinent because Corle teaches an optical assembly of two lens driven by a servo system.

13. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks Washington, D.C.  
20231 Or faxed to:

(703) 872-9314 (for formal communications intended for entry. Or:

(703) 746-6909, (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kim CHU whose telephone number is (703) 305-3032 between 9:30 am to 6:00 pm, Monday to Friday.

*KC 1/23/02*

Kim-Kwok CHU  
Examiner AU2653  
January 23, 2002

(703) 305-3032